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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/500,017	04/03/2012	Dimitar Petrov Filev	83231067	3234

28395 7590 12/02/2016
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EXAMINER

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ART UNIT	PAPER NUMBER
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3667

NOTIFICATION DATE	DELIVERY MODE
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12/02/2016

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte DIMITAR PETROV FILEV, JIANBO LU,
KWAKU O. PRAKAH-ASANTE, and FLING TSENG

Appeal 2015-001224
Application 13/500,017¹
Technology Center 3600

Before EDWARD A. BROWN, AMANDA F. WIEKER, and
FREDERICK C. LANEY, *Administrative Patent Judges*.

LANEY, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Dimitar Petrov Filev et al. (Appellants) appeal under
35 U.S.C. § 134(a) from the Examiner's Final decision rejecting claims
1–20. We have jurisdiction over this appeal under 35 U.S.C. § 6(b).
We REVERSE.

¹ According to Appellants, the real party in interest is Ford Global Technologies, LLC. Appeal Br. 1 (filed April 21, 2014).

INVENTION

Appellants' invention relates to a vehicle including "at least one controller in communication with [an] identification system and configured to characterize a driver's control of the vehicle and to record a history of the characterization if the driver classification is of a particular type." Spec. 1:24–28.

Claims 1, 6, 10, and 17 are independent claims. Claim 1 is illustrative of the claimed invention and reads as follows:

1. A vehicle comprising:
 - an identification system disposed within the vehicle and configured to acquire information from a token in a vicinity of the vehicle and to classify by type a driver of the vehicle based on the information;
 - a sensor arrangement disposed within the vehicle and configured to measure a plurality of parameters representing the vehicle's current handling condition and the vehicle's limit handling condition; and
 - at least one controller in communication with the identification system and sensor arrangement, and configured to *determine a margin between the vehicle's current handling condition and limit handling condition and to record a history of the margin in response to the driver classification being of a predefined type.*

Appeal Br. (Claims App. 1) (emphasis added).

REJECTIONS

- I. The Examiner rejected claims 6–20 under 35 U.S.C. § 102(e) as anticipated by Chin (US 2010/0152951 A1, pub. June 17, 2010).

- II. The Examiner rejected claims 1–5 under 35 U.S.C. § 103(a) as unpatentable over Chin and Kummel (US 2006/0158031 A1, pub. July 20, 2006).

ANALYSIS

Rejection I

Claims 6, 10, and 17 are independent and claims 7–9, 11–16, and 18–20 depend therefrom, respectively. Appeal Br. (Claims App. 1–4). Each of these claims, either directly or through dependency, requires a controller that characterizes a particular attribute of a driver’s behavior (e.g., torque request, longitudinal control, and longitudinal acceleration) and “record[s] a history of the characterization *in response to the driver classification being of a predefined type.*” *Id.* (emphasis added). The Examiner finds paragraphs 6, 7, 57, 58, 64, 141, 162, 191, 209, 297, and 319 of Chin are evidence of prior knowledge “to record a history of the characterization in response to the driver classification of a predefined type.” Final Act. 3, 12; Ans. 14–15. The Examiner’s reasoning is as follows:

Chin discloses classifying a driver’s driving style based on vehicle accelerating and decelerating maneuvers and road and traffic conditions. The style characterization processor classifies the vehicle accelerating and decelerating maneuver using select discriminate features. A style profile database is determined that identifies a driver by any suitable technique. Once the driver is identified, his or her style profile during a trip is stored in the style profile database. A history separate style profile is built for each driver over multiple trips.

In Chin, classifiers can be designed for both types of maneuvers and discriminates are derived from a steering angle, vehicle yaw-rate and lateral deceleration based on accelerating and decelerating, and turning maneuvers. Vehicle data from the

vehicle is collected to be qualified and identified by maneuver qualification and identification processor. The style classification derives discriminant features based on the collected data and classification that determines the driving style based on the discriminants. The driver identification unit can be identified and his or her style profile can be stored in the style profile database.

Accordingly, a history separate style profile in Chin is built up for each driver over multiple trips and can be readily retrieved to be fused with information collected during a current vehicle trip. As a result, the history of the categorization is determined in response to the driver classification being of a predetermined type.

Ans. 14–15 (citation omitted).

Appellants disagree with the Examiner’s reasoning and assert, “[t]o the extent Chin stores profile histories in style profile database 84, such storing is not performed in response to the driver’s style profile being of a predefined type.” Appeal Br. 5. Appellants argue Chin is distinguishable from the claimed invention because “Chin performs such storing regardless of the type of the driver’s style.” *Id.* (citing Chin ¶ 64). The Examiner’s reasoning is flawed, according to Appellants, because “[t]he fusing of past and current data does not appear to suggest the limitation at issue.” Reply Br. 2. Appellants assert the Examiner’s finding that “a history separate style profile in Chin is built up for each driver over multiple trips and can be readily retrieved to be fused with information collected during a current vehicle trip” does not logically lead to the conclusion “the history of the categorization is determined in response to the driver classification being of a predetermined type.” *Id.* (citing Ans. 14–15).

We are persuaded the Examiner mistakenly relies on Chin to disclose, “record[ing] a history of the characterization *in response to the driver*

classification being of a predefined type” (emphasis added). The broadest reasonable meaning of that phrase requires a controller that uses the driver’s classification type as a determinative factor for deciding whether the characterization history of the driver’s behavior (e.g., torque request, longitudinal control, and longitudinal acceleration) will, or will not, be recorded. The Specification is consistent with this understanding, wherein it states,

if the token recognition system 142 supplies information to the one or more controllers 136 identifying the driver as a teen driver, the one or more controllers 136 may record a history of the calculations of handling limit margin and/or driver style characterization in order to generate reports describing driving behavior.

Spec. 38:21–27.

The Examiner’s reasoning and supporting evidence from Chin fails to account for this requirement. Instead of showing a controller that decides whether to record the characterization history of the driver’s behavior *because* of the driver’s classification type, the Examiner has shown Chin records a driver’s behavior history to help define the driver’s classification type. To facilitate the process Chin describes, we agree with Appellants that the recording occurs regardless of the driver’s type. In other words, a driver’s classification as a predefined type plays no role in whether the controller will, or will not, record the characterization history of the driver’s behavior.

In conclusion, for the foregoing reasons, a preponderance of the evidence fails to support the Examiner’s finding Chin discloses every limitation of independent claims 6, 10, and 17. As a result, we do not sustain the Examiner’s anticipation rejection of claims 6–20 in view of Chin.

Rejection II

Claim 1 is independent and claims 2–5 depend therefrom. Appeal Br. (Claims App. 1). Each of these claims, either directly or through dependency, requires a controller “configured to determine a margin between the vehicle’s current handling condition and limit handling condition.” *Id.* Determining Chin does not disclose that limitation, the Examiner turns to Kummel. Final Act. 9–10. Referring to paragraphs 3, 15, 36, 37, 77, 90, 96, and 110 of Kummel, the Examiner finds,

Kummel discloses a calculation of a further vehicle behavior from actual data of driving dynamics and limit values linked thereto which are determined in a vehicle model with a skilled driver. K[u]mmel also discloses a system that determines future instability based on existing vehicle instability, e.g., deviation for a measured yaw rate from a nominal yaw rate and exceeding of lateral acceleration threshold. The system detects the vehicle behavior from appropriate sensors and compares the vehicle behavior, which is influenced by the driver, with the reference behavior for the vehicle. The limit values are determined at a reference vehicle and stored in the vehicle processor system.

Id. at 10. According to the Examiner, “[c]laim 1[] merely recites that the margin is determined between the vehicle’s current handling condition and limit handling condition” and, therefore, “the threshold values of the variables of Kummel are interpreted as the margin between the sensor values and the stored limit values of the vehicle.” Ans. 13. “As a result, Kummel discloses determining a margin between the vehicle’s sensor and stored limit values of the vehicle.” *Id.*

Appellants argue the Examiner’s reliance on Kummel is misplaced because “Kummel’s analysis produces a binary result: either the parameters exceed the thresholds (and action is taken to slow the vehicle) or they do not (and no action is taken to slow the vehicle).” Appeal Br. 5. A binary

process that compares sensor values against threshold values is distinguishable from the claimed margin, according to Appellants. Reply Br. 2.

We are persuaded the Examiner erred by interpreting the threshold values of the variable of Kummel as the margin between the sensor values and the stored limit values of the vehicle. Appellants appropriately point to the Specification's description of the margin as a quantitative characterization of the relationship between the vehicle's current handling condition and the limit handling condition. Appeal Br. 3–4 (citing Spec. 14:1–16:20). The Specification teaches this quantitative characterization using the following expression:

$$h_x = \begin{cases} \frac{\bar{x} - x}{\bar{x}} & \text{if } 0 \leq x \leq \bar{x} \\ \frac{x - \underline{x}}{\underline{x}} & \text{if } \underline{x} \leq x < 0 \\ 0 & \text{otherwise} \end{cases} \quad (8)$$

Spec. 14:3–5. The benefit of quantitatively characterizing the relative position of the vehicle's current condition to the vehicle's stored limits is that it enables the driving conditions to be categorized more particularly, such as in a “red zone,” “yellow zone,” or “normal.” *Id.* at 14:11–24. When considering the use of the term “margin” in claim 1 and in view of how it is described in the Specification, the broadest reasonable meaning of the term “margin” is a quantitative characterization of the relationship between the vehicle's current handling condition and limit handling condition. *See Margin Definition*, MERRIAM-WEBSTER.COM, <http://www.merriam->

webster.com/dictionary/margin (last visited on Nov. 25, 2016) (“a measure or degree of difference”).

As a result, the Examiner’s reliance on threshold values in Kummel to be the claimed “margin” is misplaced because those values do not quantitatively characterize the relationship between the vehicle’s current handling condition and limit handling condition. As the Examiner finds, those values represent limits, which are determined for a reference vehicle and stored in the vehicle processor system. Therefore, the Examiner has not shown, by a preponderance of the evidence, that Kummel discloses a controller “configured to determine a margin between the vehicle’s current handling condition and limit handling condition,” as required by claim 1.

Claim 1, and thereby dependent claims 2–5, also require a controller “configured . . . to record a history of the margin in response to the driver classification being of a predefined type.” Appeal Br. (Claims App. 1). For the reasons discussed above in Rejection I, a preponderance of the evidence also fails to support the disclosure of that limitation by Chin, as the Examiner finds (*see* Final Act. 9). The Examiner, moreover, does not rely on Kummel to cure this deficiency.

Therefore, for the foregoing reasons, we do not sustain the Examiner’s rejection of claims 1–5 as unpatentable over Chin and Kummel.

SUMMARY

The Examiner’s rejection of claims 6–20 as anticipated is reversed.

The Examiner’s rejection of claims 1–5 as unpatentable is reversed.

REVERSED